REMARKS

In the Official Action, the Examiner requested a new Abstract, raised certain rejections under the second paragraph of 35 U.S.C. §112 and set forth a number of prior art rejections.

In response to the points raised in the Official Action, the instant response replaces the Abstract with one that complies with the Examiner's recommendations, addresses the rejections under §112 by reciting the subject matter of claim 10 more clearly, providing appropriate antecedent basis for the subject matter of claim 11 and by making claim 14 dependent on new independent claim 15. This new independent claim is a combination of the subject matter of former claims 8 and 9 and such claims have been canceled without prejudice or disclaimer with a dependency of the remaining claims being revised to accommodate the new independent claim.

Claim 15 defines an adhesive resin comprising a polyimide resin obtained by reacting a diamine component containing a diamine represented by defined formula (4) as an essential component with a tetracarboxylic dianhydride component. The diamine component further comprises a diamine represented by defined formula (2) as a diamine component and/or a tetracarboxylic dianhydride component comprising a tetracarboxylic dianhydride represented by defined formula (3) as the tetracarboxylic dianhydride component.

The diamine represented by defined formula (4) has five aromatic rings connected by ether linkages with all of the ether linkages and the amine groups in the meta-position. As explained in the last full paragraph on page 9 of the specification, this structure lowers the glass transition temperature of the resin which improves low-temperature adhesion. To demonstrate that this characteristic is

important in the art, the Examiner's attention is respectfully directed to the excerpt from a Japanese language publication wherein an adhesive tape is described which uses a side with a lower glass transition temperature laminated onto the semiconductor chip. The translation excerpt states: "...the adhesive tape having the above structure is capable of laminating at a relatively low temperature, reducing damage to the semiconductor chip at the time of lamination, and thus is highly reliable." It will be noted from the structures set forth in the Japanese language excerpt, that none include a structure that is derived from a diamine of formula (4) as set forth in claim 15.

The attached Declaration Under 37 C.F.R. § 1.132 is also of relevance in that it shows a series of simulations regarding the glass transition temperatures for various polyimide resins. It will be noted from the various structures set forth on page 6 of the Declaration and the description provided on page 2 that polyimide [P1] represents a polyimide within claim 15, polyimides [P2] and [P3] represent structures as disclosed in JP-A-2003-143981, polyimide [P4] represents a structure disclosed in JP-A-08-134213 and polyimide [P5] represents a structure disclosed in JP-A-08-127656. As set forth at the bottom of page 6, the polyimide of structure [P1] has a calculated glass transition temperature that is far lower than any of the other polyimide structures.[1]

With the claims now of record and the foregoing discussion in mind, applicants respectfully submit that the cited prior art does not anticipate or render obvious the presently claimed invention. Initially, applicants respectfully point out that an anticipation rejection is proper only if the reference teaches the claimed

invention without any need for picking, choosing, and combining the various disclosures not directly related to each other by the teachings of the cited reference, *See In re Arkley*, 172 USPQ 524 (CCPA 1972). In the present situation, JP-A-2000-143981 falls far short from satisfying this test for anticipation. The diamine of formula (4) requires five ring structures each of which is connected by an ether group with all of the ether groups and each of the diamine groups located in the meta-position.

The JP '981 publication relates to a resin composition having low water absorption, solder heat resistance, heat resistance and adhesiveness, which is bondable especially at a low temperature by mixing a specific polyimide resin with an epoxy resin. The diamine used to form the polyimide resin has a generic structure that can include the structure of formula (4) with appropriate picking and choosing. However, there is nothing within the document which would lead to precisely the structure set forth in formula (4). In this regard, the number of aromatic rings can be any where from 3 to 12, the linkages can be any one of numerous groups as set forth in claim 1 and the linkages can be in any position. On page 4 of the Official Action, the Examiner has stated that the substituents are in the meta-position. This statement is not correct. While paragraph [0026] indicates that the **amino group** can be in the meta-position, it says nothing about the position of the groups linking the aromatic rings nor does it teach that such linkages should be ether groups. Moreover, the meta-position for the amino groups is to obtain better solubility in an organic solvent and excellent workability and not with respect to obtaining a low

[1] The Declaration refers to amended claim 8, but the noted subject matter has been presented as new independent claim 15.

glass transition temperature. Thus, the JP '981 publication cannot be used in any way to anticipate the claims of record.

The JP '981 publication also does not render the claims obvious since the document in no way recognizes the importance of the defined diamine in obtaining the advantageously low glass transition temperature. Furthermore, as noted above, the Declaration illustrates an embodiment ([P2]) wherein the amino groups are located in the meta-position, but the ether linkages are in the para-position and which provides a glass transition temperature that is determined to be substantially higher than that provided by polyimide [P1]. Thus, this is further evidence that the claims now of record are patentable over the teachings of the JP '981 publication.

The claims of record are also patentable over JP-A-08-134213 and JP-A-08-127656. Neither of these documents would lead those of ordinary skill in the art to the presently claimed invention which includes the polyimide obtained from the diamine of formula (4). Applicants first note that the JP '213 publication provides only a four ring structure which does not meet the five ring structure of formula (4). Thus, there is no selection within the teachings of the JP '213 publication that can provide the presently claimed subject matter. Moreover, as may be seen from the Abstract, the illustrated diamine compound is 4,4'-bis(4-aminophenoxy)diphenyl ether which provides neither the structure nor the meta-position defined by formula (4). Coupled with the failure to recognize that the defined structure can provide a polyimide with a low glass transition temperature, it will be evident that the JP '213 publication falls far short of being sufficient to justify a rejection of any of the pending claims. This is particularly true when on considers the results set forth in the

Declaration and the stated glass transition temperature of the structure of polyimide [P4].

The diamine of the JP '656 publication has six aromatic rings and similarly would not provide the five ring structure set forth in formula (4). Moreover, the illustrative diamine described in the Abstract, namely, 4,4'-bis[4-(4-aminophenoxy)phenoxy]diphenyl sulfone would certainly not lead one of ordinary skill in the art to the diamine of formula (4). When this is considered with the stated glass transition temperature of polyimide [P5] in the Declaration, those of ordinary skill in the art will appreciate that the claims of record are patentable over this document as well.

Turning to Yoshida et al., U.S. Patent No. 5,773,509, this patent relates to a heat resistant resin composition comprising, as main components, defined amounts of an organic solvent-soluble polyimide resin having a glass transition temperature of 350 °C or less, an epoxy compound having at least two epoxy groups in one molecule, and a compound having an active hydrogen group which can react with the epoxy compound. The polyimide resin is prepared form a diamine illustrated at the top of column 7 with the two illustrative compounds being 2,2-bis[4-(4-aminophenoxy)phenyl]propane or 4-4'-diaminodiphenylmethane. Moreover, none of the specific diamine compounds set forth at the bottom of column 7 meet the diamine of formula (4). Indeed, if one is guided by the stated illustrative diamines set forth at the top of column 7 and those diamines which are used in the examples, one would not arrive at the presently claimed invention which requires the presence of the diamine of formula (4). Furthermore, Yoshida et al., like all the other cited references, does not in any way recognize the importance of the defined diamine of

formula (4) in obtaining a polyimide that has a low glass transition temperature as demonstrated in the evidence of record.

For all of the reasons set forth above, applicants respectfully submit that the claims of record clearly and distinctly define all aspects of the present invention in a manner which is patentable over the cited prior art, particularly in view of the evidence which has been presented. Accordingly, applicants respectfully request reconsideration and allowance of the present application.

Should the Examiner have any questions concerning the subject application, the Examiner is invited to contact the undersigned attorney at the number provided below.

Respectfully submitted,

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